Determining Productive Capacities (Cont.) SOV/1314

COVERAGE: This collection of articles explains the methodology and practice employed in determining the productive capacities of machinery manufacturing establishments and discusses the discovery and utilization of untapped productive capacities. Material included in this collection of articles was presented and discussed at the second scientific and technical conference on exchange of experience in the field of dealing with the methodology and actual determination and utilization of productive capacities in Soviet machinery manufacturing plants, convened in December of 1955 by the Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni F.E. Dzerzhinskogo (Moscow House imeni F.E. Dzerzhinskiy for Dissemination of Scientific and Technical Data). There are no references. No personalities are mentioned.

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Determining Productive Capacities (Cont.)

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Determining Productive Capacities (Cont.) SOV/1314

AVAILABLE: Library of Congress (HD 9705.R92M64)

JG/atr
3-20-59

Card 4/4

BURMISTROV, N.S., inzh, [deceased]; GALKIN, M.A.; MATVEYEV, P.F.; NESHITOV, G.A.; OZHIMKOV, N.G.; VOSKRESENSKIY, B.V., ekonomist, retsenzent; KALININ, P.G., ekonomist, retsenzent; SHUSTER, A.I., ekonomist, retsenzent; SALYANSKIY, A.A., red.izd-va; EL'KIND, V.D., tekhn.red.

[Planning auxiliary shops in machinery manufacturing factories] Planirovanie vspomogatel'nykh tsekhov mashinostroitel'nogo zavoda. Pod red. N.S. Burmistrova. Izd. 2. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 278 p. (MIRA 12:2)
(Machinery industry)

1. VOSKRESENSKIY, B. V., Eng.

2. USSR (600)

4. Industrial Management

7. For high quality of literature on the management and organization of production
Vest.mash. No. 6 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

VOSKRESENSKIY, B.V.

YUR'YEV, N.M.; VOSKRESENSKIY, B.V., inzhener, retsenzent; FEDOT'YEV, V.P., inzhener, retsenzent; BOSTINSKIY, M.N., inzhener, redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor

[Work organization of a machine shop in a machine building plant] Planirovanie mekhanicheskogo tsekha mashinostroitel'nogo zavoda pri massovom i krupnoseriinom proizvodstve. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 183 p. (MIRA 8:3)

(Machine shops) (Machinery industry)

VOSKRESENSKIY, B.V.

USSR/Engineering

Card 1/1 : Pub. 128 - 30/38

Authors : Voskresenskiy, B. V.

Title : Methods of standardizing metal expenditure in parts manufacture

Periodical : Vest. mash. 9, 91-96, Sep 1954

Abstract : The editorial deals in methods of standardizing the specific consumption of metal to cover work on hand, and calculating material requirements in the future manufacturing of various machine components. Graphs; tables.

Institution : .....

Submitted : .....

VOSKRESENSKIY, D. A.

Voskresenskiy, D. A. - "Preliminary summaries and markers of the 1949 plan," Les. khoz-vo, 1948, No. 3, p. 17-18.

SO: U-3600, 10 July 53, (Letopis 'Zhurnal (nykh Statey, No. 6, 1949).

VORONIN, Ivan Vasil'yevich; VOSKRESENSKIY, Dmitriy Alekseyevich; KOZLOV, Nikolay Andreyevich; LEBEDEV, Arseniy Andreyevich; PEREPECHIN, Boris Mikhaylovich; SUDACHKOV, Yevgeniy Yakovlevich, kand.ekon. nauk; CHULITSKIY, Lev Dmitriyevich; KARASIKOV, S.A., prepodavatel', retsenzent; MOTOVILOV, G.P., doktor sel'skokhoz.nauk, red.; SHAKHOVA, L.I., red.izd-va; FUKS, Ye.A., red.izd-va; BACHURINA, A.M., tekhn.red.

[Forestry economics; organization and production planning] Ekonomika lesnogo khoziaistva; organizatsiia i planirovanie proizvodstva. Moskva, Goslesbumizdat, 1958. 292 p. (MIRA 12:3)

1. Khrenovskiy tekhnikum lesnogo khozyaystva (for Karasikov).
(Forests and forestry--Economic aspects)

30743

S/535/60/000/125/004/008
E133/E162

9.4230 (1532)

AUTHORS: Voskresenskiy, D.I., Granovskaya, R.A., Deryugin, L.N., and Fedorov, S.I.

TITLE: Investigation of a slow-wave system with non-contacting fins

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no. 125, 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 43-66.

TEXT: The efficiency of a travelling wave tube incorporating a slow-wave structure can be increased by introducing auxiliary constant accelerating fields in the interaction space and thus preventing over-grouping. A slow-wave system suitable for this purpose is the θ-system, as shown in Fig.1. The metallic fins do not make contact with the waveguide walls and are positioned by dielectric supports. The electron beam passes through the middle channel. In this article, the θ-system is investigated experimentally. Initially, general considerations are discussed. The experimental measurement of the retardation and of the coupling impedance of the fundamental synphase wave is described

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Investigation of a slow-wave system ...

and the results on seven models produced. The effects of varying the various dimensions are demonstrated. The field distribution and the effects of connecting the fins to the walls of the wave-guide are investigated. Finally, the higher modes which are possible in the system are considered and investigated experimentally. The longitudinal components of the electric field of the fundamental synphase wave are shown in Fig.1. Theoretical determination of the retardation factor and of the coupling impedance is difficult, due to the complex geometry which is specified by five independent dimensions: a, b, g_E, g_H, d, and also by the period of the structure T and the fin thickness t. The effects of g_E and g_H can be estimated by the relationships developed by L.N. Deryugin and N.V. Trunova (Ref.2: Radiotekhnika, 1959, No.3) and the effect of increasing d is to increase the retardation and to decrease the coupling impedance. T affects these parameters only when it is near to $\lambda_z/2$ in value. For experimental investigation, seven θ-system models were prepared. The models were approximately square in cross-section (b/a = 0.925) and the dimensions of all the models are tabulated (see Table 1). The dispersion characteristics of the θ-system -

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Investigation of a slow-wave system... E133/E162

the retardation factor and the coupling impedance - were obtained by the resonance method, using the models. The construction of the models, the experimental set-up and procedure are detailed. The error in measurement of the retardation factor is estimated at not more than 5% and that for the coupling impedance not more than 20%. The three experimental dispersion curves for models 2, which differ only in their d dimension, are compared with the theoretical curve for a three-channel system with the same g_E, g_H and b, but without side walls ($a = \infty$), and show that increasing d moves the curve towards the low-frequency side. The experimental dispersion curves for the first four models (which have constant g_H and d dimensions, but different g_E dimensions) show that reduction of g_E leads to a small displacement of the curves towards the high-frequency side, but has little effect on the slope. The experimental dispersion curves for models 2 and 5 (which have constant g_E and d dimensions, but different g_H) show that increase of g_H moves the dispersion curve towards the high-frequency side. The relative frequency bandwidth, corresponding to a change in the retardation factor from 4 to 7, was

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10-15% for all the models. Curves of the coupling impedance (at the axis of the θ-system) versus the electrical depth of the channels with: (a) g_H constant, g_E varied, and (b) g_E constant, g_H varied) are produced. Investigation of the field distribution showed the presence of two symmetrically disposed nodal lines of the electric field in the channel between the gaps g_E and g_H. The positions of these lines were investigated. Systems with different values of T were compared, and the results show that, except when T lies between $1/4\lambda_z$ and $1/2\lambda_z$, its value has little effect on the characteristics of the system. The effect of connecting the fins to the waveguide walls was investigated. It was established experimentally that the presence of four metallic connections placed symmetrically at the nodes of the electric field did not change the field distribution of the fundamental synphase wave. Their effect on the dispersion curves was also investigated. Finally, the retarded and accelerated waves and fields, corresponding to E_{110}, E_{210}, E_{120} and E_{220} modes in rectangular resonators were investigated. The electric field distributions obtained experimentally are shown diagrammatically, and the results discussed.

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Investigation of a slow-wave system ... S/535/60/000/125/004/008
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M.S. Neyman is mentioned in the article. There are 22 figures, 1 table and 3 Soviet-bloc references.

Table 1

Model number	$g_H \| b$	$g_E \| b$	$g_H \| h$	$g_E \| h$	d/a
1	0.011	0.054	0.025	0.12	0.01
2a	0.011	0.027	0.023	0.058	0
2b	0.011	0.027	0.023	0.058	0.01
2c	0.011	0.027	0.023	0.058	0.03
3	0.011	0.018	0.023	0.038	0.01
4	0.011	0.009	0.023	0.019	0.01
5	0.032	0.027	0.074	0.061	0.03

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05203
SOV/142-2-3-11/27

9(2,3,9)

AUTHORS: Voskresenskiy, D.I., Granovskaya, R.A.

TITLE: A Delay System in the Shape of a Grooved Helix

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol 2, Nr 3, pp 353-360 (USSR)

ABSTRACT: The author considers a delay system in the shape of a rectangular waveguide of the helical groove type without internal sidewalls. For such a system, he presents an approximated electromagnetic wave propagation theory, calculation methods of phase velocity and coupling resistance. An experimental dispersion curve is given together with the measurement results of the "cold" coupling resistance for one model. The theoretical results were compared with the experimental data obtained from a resonance model of a delay system by the method described by the author in ref.4. The paper was recommended for publication by the Kafedra radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Dep't. of Radio Transmitting Equipment of the Moscow Lenin Order-Aviation Institute imeni Sergo Ordzhonikidze). There are 4 graphs, 3 diagrams, 1 block diagram

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A Delay System in the Shape of a Grooved Helix

and 6 references, 4 of which are Soviet and 2 American.

SUBMITTED: January 24, 1959

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VOSKRESENSKIY, D.I.

p. 7

PHASE I BOOK EXPLOITATION SOV/3873

SOV/11-M-98

Moscow. Aviatsionnyy institut im. Sergo Ordzhonikidze

Voprosy radiotekhniki i elektroniki sverkhvysokikh chastot; sbornik statey (Problems in Super-High Frequency Radio Engineering and Electronics; Collection of Articles) Moscow, Oborongiz, 1958. 81 p. (Series: Its: Trudy, vyp. 98) 15,210 copies printed.

Ed.: (Title page): M.S. Neyman, Doctor of Technical Sciences, Professor; Ed. (Inside book): V.N. Dulin, Candidate of Technical Sciences; Managing Ed.: A.S. Zaymovskaya, Engineer; Ed. of Publishing House: I.A. Suvorova; Tech. Ed.: V.P. Rozhin.

PURPOSE: This collection of articles is intended for engineers and scientific workers in the fields of radio engineering and electronics, and advanced students of schools of higher technical education. It may also be of interest to large numbers of radio specialists.

COVERAGE: This collection of articles contains the results of research carried out in 1955-56 at the Department of Radio Transmitters of the Moscow Aviation

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Problems in Super-High Frequency (Cont.)

Institute imeni Sergo Ordzhonikidze. The articles cover the fields of waveguide systems, ribbed electrodynamic structures, and modulation of self-excited oscillators. No personalities are mentioned. References accompany each article.

TABLE OF CONTENTS:

This article deals with the calculation and experimental investigation of reflectance of an electromagnetic wave falling on a ribbed metal surface. It was found that at a groove depth of approximately one-quarter wave the phenomenon of depth resonance occurs. Simple analytical expressions for amplitudes and phases are given for narrow grooves, while numerical results are given for large grooves. There are 4 references, all Soviet.

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SOV/3873

Problems in Super-High Frequency (Cont.)

Telyatnikov, L.I. Distortion of Amplitude-Modulated Oscillations as a Result of Spurious Frequency Modulation.
The article presents the theory and gives various cases of amplitude-modulated self-excited oscillators having spurious simultaneous frequency modulation. There are 3 references, all Soviet. 31

Voskresenskiy, D.I. Resonance Measurement Method for Waveguide Irregularities Which Cause Slight Reflection.
The article examines a new method of measuring waveguide and feeder reflectance coefficients when the latter are less than one percent. There are 3 references, all Soviet. 64

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Card 3/3

VOSKRESENSKIY, D.I.; GRANOVSKAYA, R.A.

Delay system in the form of a grooved helix. Izv.vys.ucheb. zav.; radiotekh. 2 no.3:353-360 My-Je '59. (MIRA 13:2)

1. Rekomendovana kafedroy radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta im.Sergo Ordzhonikidze.
(Wave guides) (Antennas (Electronics))

VOSKRESENSKIY, D.I.; GRANOVSKAYA, R.A.; DERYUGIN, L.N.; NAUMENKO, Ye.D.; TRUNOVA, N.V.

Delay system of a periodic structure with contactless plates. Izv. vys.ucheb.zav.; radiotekh. no.4:480-489 Jl-Ag '58. (MIRA 11:11)

1. Rekomendovana kafedroy radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta im. Sergo Ordzhonikidze.
(Microwaves)

VOSKRESENSKIY, D. I.

"Investigation of the Deflections of Water Waves." Cand Tech Sci, Moscow Order of Lenin Aviation Inst imeni Sergo Ordzhonikidze, Min Higher Education USSR, Moscow, 1955. (KL, No 11, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

VOSKRESENSKIY, D.I.; GRANOVSKAYA, R.A.; DERYUGIN, L.N.; NAUMENKO, Ye.D.; TRUDOVA, N.V.

Measuring the coupling resistance of a retarding system with contactless plates. Izv.vys.ucheb.zav.; raditekh. no.5:565-572 S-O '58. (MIRA 12:1)

1. Rekomendovano kafedroy radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze. (Radio measurements)

Voskresenskiy, D.I.

88-58-98-4/4

AUTHOR: Voskresenskiy,D.I., Candidate of Technical Sciences

TITLE: Resonance Method of Measuring Waveguide Irregularities Causing Small Reflections (Resonansnyy metod izmerenia neregulyarnostey volnovodov, vyzvayushchikh malyye otrazheniya)

PERIODICAL: Trudy Moskovskogo aviatsionnogo insituta, 1958, Nr 98; Problems in Superhigh-frequency Radio Engineering and Electronics (Voprosy radiotekhniki i elektroniki sverkhvysokikh chastot), pp 64-82 (USSR).

ABSTRACT: The difficulty of experimental work, when studying nonuniformities of waveguides, is due to the fact that the reflection coefficients are very small. The necessary experimental precision can be achieved when the resonance method of measuring waveguide nonuniformity is used. A discussion of this method is presented. The author briefly explains two methods of measuring reflection coefficients. In the first method the Lecher wire and a portion of an ordinary waveguide with a moving plunger are used. The second method is based on the application of a waveguide

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Resonance Method of Measuring Waveguide (Cont.) 88-58-98-4/4

impedance bridge. The error of both these methods is rather large. The resonance method gives better results and is applied in the following manner: if a section of a waveguide whose length is equal to an integral number of half-wave lengths is closed at the ends by the conducting walls then it will represent an endovibrator which is tuned to resonance at some frequency. When some nonuniformity (a stub, for example) is inserted into the section, the resonant frequency of the device changes. Using this frequency change it is possible to calculate the reflection coefficients in the waveguide. It is stated that the endovibrator can be considered as an equivalent section of a transmission line short-circuited at the ends. The effect of the stub inserted into the waveguide section corresponds to the insertion of lumped reactances and an ideal transformer into the section of the equivalent transmission line. Since measurements of frequency difference, the distance from the stub to the moving plunger, etc., can be made accurately, the determination of small reflection coefficients can be carried out with a sufficient degree of accuracy.

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88-58-98-4/4

Resonance Method of Measuring Waveguide (Cont.)

On p.68, Fig. 1 and Fig 2, equivalent diagrams of an endovibrator with parallel- and series-connnected reactances, respectively, are presented. Using both figures the expressions for the normalized susceptance and reactance are derived. The transformer ratio equation, when the endovibrator diagram includes an ideal transformer only, is also derived and the change in the endovibrator resonant length is discussed. The author states that the endovibrator insertion impedance can be decreased and the sharpness of the resonant curve peak can be increased by an increase of oscillator power. This was checked experimentally using wavelenth λ =24 cm. The relationship between the reflection coefficients and the capacitive stub diameter in the waveguide is given in Fig. 3, p.72. The solid and dotted lines in Fig. 3 represent the theoretical and experimental curves respectively. A method of measuring the transformer ratio and lumped reactance of junctions placed between two rectangular waveguides is explained in the beginning of this section. In Fig. 4, p.75, the voltage antinode (Fig. 4b) and voltage node (Fig. 4a) locations necessary for determination of the

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Resonance Method of Measuring Waveguide (Cont.) 88-58-98-4/4

waveguide plunger positions are given. Fig. 5 (a) and 5 (b), p.75 show the diagrams of flange-coupled waveguide sections with single plunger. The location of the voltage antinodes and nodes as well as the plunger position at resonance are indicated. On p.76 two plunger positions and the location of voltage antinodes and nodes for flange-coupled waveguide sections of different lengths are shown in Fig.6. The action of the waveguide bends and other endovibrator irregularities effect a change in resonant length. This effect can be eliminated by constructing the endovibrator of three rectangular waveguide sections with the oscillator and indicator coupling elements located in the third section. Diagrams of such a waveguide showing voltage antinodes and nodes are given in Fig. 7, p.76. The author discusses a method which was used in an experiment to determine waveguide plunger position, by means of which the value of the reactance was calculated. Diagrams of the waveguide sections and plunger positions are shown in Fig 8, p.77.

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Resonance Method of Measuring Waveguide (Cont.) 88-58-98-4/4

The author explains that the parameters of waveguide junctions were measured in the experiment. The three-centimeter waveband was used. The experiment utilized a 43I pulse-oscillator, 28I-type indicator, and a 10-15 db attenuator. The pulse width was 100 micro-seconds. Rectangular waveguides with 9 different junctions were investigated. A general view of junction types appears in Fig. 9, p.78. Stubs and slots were used as coupling elements between the endovibrator and feeding waveguide. The change in plunger position was measured with an error not larger than 0.01 mm. The experiment showed that the reflection coefficients of the flanged couplings used were not greater than 0.005. Theoretical data and the results of the experimental measurements are tabulated on pp.79-80 for comparison. The experimental data did not differ from theoretical calculations by more than 25%. In conclusion it is stated that the value of the measured parallel conductances of the capacitive stubs in the waveguides differed by 7-19% from the theoretical values.

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Resonance Method of Measuring Waveguide (Cont.) 88-58-98-4/4

This difference, however, is relatively small so that the derived equations can successfully be used in computing the desired parameters. There are 9 figures and 4 references, all Soviet.

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9-8-58

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SOV/142-58-4-14/30

A Delay System of Periodic Structure with Non-Contact Plates

electrodynamic parameters is complicated by their geometrical complexity, special attention is paid to the experimental investigation of this system. For all the models studied a change in retardation from 4 to 7 corresponds to a relative frequency band of 10% - 15% and a displacement of the nodal plane of roughly 10% from the total height of the plate h. The coupling impedance at the axis in this deceleration interval is 10 - 30 ohm. Maximum coupling impedance is relatively small and does not go below 20 ohm. Maximum possible retardation (γ max) in the system is determined by the general formula:

$$\gamma_{max} = \frac{1}{2} \frac{\lambda}{T}$$

The resonance method was used to measure the retardation. The measuring method is accurately described as well as the results of experimental investigation. The frequency band, corresponding to the variation in retardation from 4 to 7 has the same order of magnitude as in corresponding three channel systems.

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A Delay System of Periodic Structure with Non-Contact Plates

There are 7 graphs, 1 block diagram, 1 schematic diagram, 1 table, 1 photograph and 3 Soviet references.

ASSOCIATION: Kafedra radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Chair of Radio Transmitting Equipment, Moscow, Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: March 17, 1958

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SOV/142-58-5-7/23

9(3)

AUTHORS: Voskresenskiy, D.I., Granovskaya, R.A., Deryugin, L.N., Naumenko, Ye.D., and Trunova, N.V.

TITLE: Measuring of Coupling Resistances of a Retardation System with Non-Contacting Plates

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, radiotekhnika, 1958, Nr 5, pp 565-572 (USSR)

ABSTRACT: The authors describe methods to determine coupling resistances of a periodic retardation system with non-contacting plates. For measuring, the method of "absorbing switching-in" is used, which measures the change of durability of the resonance dummy with a retarding system. It starts with bringing a small absorbing element into the resonator (Fig.1). By experiments, it was found, that the presence of four metal tie plates, arranged symetrically within the knots of an electric field (Fig.5 and 6), did not change the characteristics of the system. Neither did displacing the tie plates from the knots over a distance of ± 15 mm lead to a considerable change of characteristics. The article is recommended by

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SOV/142-58-5-7/23

Measuring of Coupling Resistances of a Retardation System with Non-Contacting Plates

the Kafedra radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Chair of Radio Transmission Devices at Moscow Institute for Aviation imeni Sergo Ordzhonikidze of the Order of Lenin). There are 3 figures, 3 graphs, 10 equations and 4 references, 1 of which is Soviet, 2 English and 1 German.

SUBMITTED: March 17, 1958

Card 2/2

30740

S/535/60/000/125/001/008
E033/E162

9,4230
9.3700

AUTHORS: Voskresenskiy, D.I., Granovskaya, R.A., and Deryugin, L.N.

TITLE: A method of measurement of the electrical characteristics of slow-wave systems having weak space-harmonics

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no.125, 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 5-13.

TEXT: The article examines a method of measuring the electrical characteristics - the coupling impedance and the retardation factor - of slow-wave structures when the space harmonics are negligible in comparison with the fundamental. This case is termed the "monoharmonic" case and means, physically, that the periodic structures may be replaced by an equivalent retarding continuous medium. The electromagnetic field components in a monoharmonic travelling wave, propagating along the z-axis of the system, can be written:

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A method of measurement of the ....

$$\dot{A}_m(x,y)\, e^{jk_z z}$$

where $\dot{A}_m(x,y)$ is the complex amplitude of the corresponding component, depending on the coordinates in the cross-sectional plane of the system, and k_z is the phase constant, which is related to the phase velocity and the wavelength along the system by:

$$v_z = \frac{\omega}{k_z}, \qquad \lambda_z = \frac{2\pi}{k_z}$$

By "retardation factor" is meant the ratio of the wave velocity c in free space to the phase velocity v_z in the system.

$$\gamma = \frac{c}{v_z} = \frac{\lambda}{\lambda_z} = \frac{k_z}{k} \qquad (1)$$

where λ and k are the free space wavelength and phase constant respectively for the corresponding working frequency.
Experimental determination of the retardation factor by phase

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A method of measurement of the ...

measurements on travelling or standing waves is ruled out by a number of practical difficulties, and therefore a resonance method is used. This consists of obtaining dispersion curves by "cold" measurements on models formed by short-circuiting both ends of resonant sections of slow-wave systems. The coupling impedance is determined in the same models by the absorption method. To simplify the experimental investigation, the models are scaled up and lower frequencies used. The section is short-circuited at both ends by plane metallic walls, thus forming a cavity resonator in which resonant fields, having the structure of the retarded waves in cross-section, are excited by suitable coupling elements. Resonance will occur when the length between the end walls L is given by

$$L = m\lambda_z/2$$

where m is an integer. After the model has been tuned to the particular wave, the dimension L is changed by moving one end wall, and the experimental dependence of the slow-wave length on the resonant frequency $\lambda_z(f_p)$ is obtained. From this, the dispersion retardation characteristic:

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A method of measurement of the ...

$$\gamma(f_p) = \frac{\lambda\ (f_p)}{\lambda_z(f_p)} \quad \frac{c}{f_p\lambda\ (f_p)} \tag{2}$$

may be obtained. To avoid practical difficulties, a fixed length L may be used and, by changing the excitation frequency, a discrete number of experimental points on the dispersion characteristic, which correspond to resonant values $\lambda_z = (2/m)\ L$, may be obtained. The block diagram of the set-up is shown in Fig.1. The coupling impedance at a point in the cross-section of a monoharmonic slow-wave structure is:

$$R = \frac{E_z^2}{2k_z^2 P} \tag{3}$$

where E_z is the amplitude of the longitudinal component of the electric field at the point, and P is the power flow of the wave under consideration. Direct measurement of these quantities is difficult. A suitable method of experimental determination of the coupling impedance is by measuring the change in the Q-factor

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(or in the bandwidth) of the resonant model when a small absorbing body is introduced into it. The coupling impedance is found from:

$$R = \frac{L}{8\pi^2} \left| \frac{d\lambda_z}{df} \right| \frac{E_z^2}{W} \qquad (5)$$

where W is the total electromagnetic energy in the section; $d\lambda_z/df$ is found from the dispersion characteristic $\lambda_z = \lambda_z(f)$; and E_z^2 can be measured on the model by:

$$\frac{E^2}{W} = \frac{2\pi}{\mu} (\Delta f' - \Delta f) \qquad (10)$$

where Δf is the half-power bandwidth with no absorption and $\Delta f'$ is the bandwidth with the absorption body in the model; μ is the absorption coefficient of the body, which can be calculated from its dimensions, orientation, permittivity and permeability, or can be measured experimentally. Measurement accuracies of the order of 10% for the coupling impedance and several percent for the retardation factor are obtainable.

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A method of measurement of the ...

The practical advantages of the methods described over other methods are discussed.

There are 1 figure and 3 non-Soviet-bloc references. The English language references read as follows:

Ref.1: R.L. Sproull, E.G. Linder. Resonant Cavity Measurements, PJRE, 1946, Vol.34, No.5, pp.305-312.

Ref.3: E.J. Nalos. Measurement of Circuit Impedance of Periodically Loaded Structures by Frequency Perturbation. PJRE, 1954, Vol.42, No.10, p.1508.

Card 6/6

S/535/60/000/125/005/008
E025/E335

9, 2590

AUTHORS: Voskresenskiy, D.I., Granovskaya, R.A. and Deryugin, L.N.

TITLE: Investigation of delay systems of the interdigital type

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no. 125. 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 67 - 91

TEXT: An experimental study was made of interdigital delay structures, using the resonance-model method. The dispersion curves were obtained by determining the resonant frequencies of models of short-circuited lengths of the structure. The distribution of the fields and the coupling impedances of the harmonics were measured on the same models by the absorption (perturbation) method. The experimental model contained six periods of the structure enabling measurements to be made at seven points in the first passband and at six points in the next passband. These readings suffice for the construction of curves of delay and coupling impedance versus frequency. The use of six

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E025/E335

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periods gives sufficient sensitivity for the absorption method. Two models of the delay structure each with a Q of 2000 but differing in their relative dimensions were used. The electrical height of the system is given in a table for both models in the first and second passbands. Dispersion curves are given for both models showing the delay of the phase velocity of the fundamental, first positive and first negative harmonic. Curves given for the delay of higher harmonics and for the delay of the group velocity as a function of the wavelength in free space were calculated from these results. The distribution of the longitudinal field was measured by driving the model by a capacitative projection at one end-wall, the detector head at the other end-wall having the same capacitative coupling. The absorbing element was moved along the axis of the model by a system of rollers and thread. The absorbing element is described; its anisotropy had the values $\mu_z/\mu_y = 20$, $\mu_z/\mu_x = 15$ (μ is the absorption coefficient in the given direction). A diagram shows the idealized distribution of the longitudinal field; the possible field distributions for various amplitudes of the first three

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E025/E335

Investigation of delay systems ...

(m = 0, 1, -1) harmonics are examined and used to find the sign of the field-distribution. The experimental results are presented in a series of curves showing the maxima of the coupling impedance; the variation of the field strength as the absorbing element is moved along the resonator; the field distributions; the relative amplitudes and coupling impedances of the fundamental, first-positive and first-negative harmonics.
There are 25 figures, 2 tables and 6 references: 1 Soviet-bloc and 5 non-Soviet-bloc. The English-language references mentioned are: Ref. 2 - R.C. Fletcher - PIRE, v. 40, August, 1952, pp. 951-954; Ref. 3 - J.F. Hull, G. Novick and B.D. Kumpfer - Proc. National Electronic Conference, v. 8, Sept. 29, 30 and October 1, 1952, pp. 313-320, Chicago, Ill; Ref. 5 - P. Palluel and A.K. Goldberg - The O-type Carcinotron Tube, PIRE, March 1956, pp. 333-345.

B

Card 3/3

30744
S/535/60/000/125/006/008
E033/E362

9,1300

AUTHORS: Voskresenskiy, D.I. and Granovskaya, R.A.

TITLE: Investigation of a single-start spiral in a circular waveguide

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no. 125. 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 92 - 97

TEXT: The dispersion properties and coupling impedance of a spiral located in a circular waveguide were investigated by using a resonance model (Fig. 1a). The length of the model was sufficient to obtain different harmonics and fixed-end walls ensured a high Q-factor of the order of 1500. The absorbing element was introduced into the waveguide via apertures and hence the field distribution was obtainable. The end walls created a mirror image giving a spiral of reverse direction and, strictly speaking, the field in the resonance model was not exactly identical to the standing-wave pattern in an infinitely long waveguide. However, the approximation improved with distance from the end walls and, therefore, the coupling impedance and

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dispersion were measured at points distant from the end walls and with high harmonics. The method and block-schematic were basically as described in other articles of the same symposium. The model had the following dimensions: $R/r_o = 2$; $a_o/r_o = 0.143$; $a_o/h = 0.276$. By determining the number of semi-waves at a given resonant frequency and knowing the geometric length of the model, the retardation $\gamma = c/\lambda_z f_p$ (c - velocity of light, f_p - resonant frequency, λ_z - the wavelength of the slow wave) can be calculated. The results of measurement of the retardation are compared graphically with the theoretical results. The difference (about 10%) is explained by the error in the resonance model and by the assumptions of the approximate theory. The coupling impedance was measured by the absorption method. The absorbing element, consisting of a glass rod with a layer of Aqua-dag, was calibrated in coaxial and cylindrical resonators. The results of measurement of the coupling impedance (accuracy about 15%) are shown graphically together with the theoretical curve. The retardation changes only from 9 to 11

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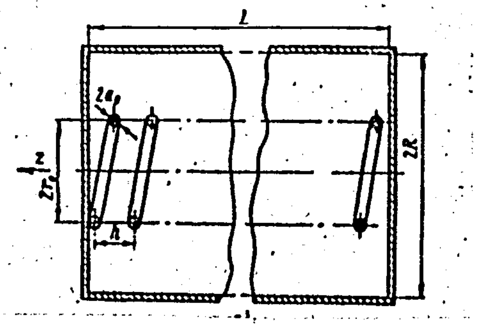
over a wide frequency band but the coupling impedance falls from hundreds of ohms at low frequencies to a few ohms at high frequencies.
There are 4 figures and 3 Soviet-bloc references.

Fig. 1:



Card 3/3

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001861020020-1"

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001861020020-1"

VOSKRESENSKIY, D.I.

Commutated antenna with wide-angle electronic scanning. Izv. vys. ucheb. zav.; radiotekh. 6 no.6:688-694 N-D '63. (MIRA 17:1)

1. Rekomendovana Moskovskim aviatsionnym institutom.

ACCESSION NR: AP4012367 S/0142/63/006/006/0688/0694

AUTHOR: Voskresenskiy, D. I.

TITLE: Commutated antenna with wide-angle electric scanning

SOURCE: IVUZ. Radiotekhnika, v. 6, no. 6, 1963, 688-694

TOPIC TAGS: antenna, radar antenna, electrically scanned antenna, wide angle scanned antenna, commutated antenna, narrow beam antenna, antenna feed system, antenna phasing system, wide angle scanning, antenna scanning, radar scanning, scanning angle

ABSTRACT: It is shown that a system of dipoles arranged in a circle (ring array) and switched in accordance with a definite program permits one-dimensional electric scanning over a complete 360° arc at constant directivity characteristics. Two dimensional scanning is possible by arranging the dipoles on a spherical surface. In such a system the spacing between dipoles can be larger than in a linear commutated antenna, thus eliminating some structural difficulties with such antennas. An advantage in wide-angle scanning is that a ring array employs fewer dipoles than a linear system producing

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ACCESSION NR: AP4012367

the same beam width. A system of ring arrays can be used to shape a sharp beam with one- or two-dimensional electrical scanning at a constant directivity-pattern width. Methods for feeding and phasing such antennas are discussed, and it is shown that ring arrays call for simpler systems than linear or plane arrays. Orig. art. has: 5 figures and 5 formulas.

ASSOCIATION: Moskovskiy aviatsionny*y institut (Moscow Aviation Institute)

SUBMITTED: 21Mar63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: CO, CG NO REF SOV: 001 OTHER: 001

30745

S/535/60/000/125/007/008
E033/E362

9,4230

AUTHORS: Voskresenskiy, D.I. and Granovskaya, R.A.

TITLE: Investigation of a slow-wave system of the "spiral-channel" type

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no. 125. 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 98 - 103

TEXT: Results of measuring the retardation and coupling impedance of a slow-wave system of the spiral-channel type are given in this article. These values were measured on a resonance model (Fig. 2), consisting of a section of the spiral, short-circuited by metallic end-walls. A standing wave could be excited in the model by a finger through an aperture in one end-wall and the resonance-indicator was coupled to the model by a similar finger in the other end-wall. A number of radial and azimuthal apertures in the end-walls permitted the field-distribution to be investigated. Obtaining the dispersion curve was complicated by side resonances and by different types of waves which could be excited in the model. The number of slow

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Investigation of ....

semi-waves m was determined by moving a cylindrical element, coated with an absorbing layer of Aqua-dag, along the z (longitudinal) axis of the system. The absorption method was used to obtain the value of the coupling impedance. The absorbing element, a small phenopolystyrol cylinder with its side surface coated with Aqua-dag was calibrated in a standard cylindrical resonator. The experimental dispersion curve is produced and compared with the curve obtained from a dispersion equation, previously derived by the present authors (Ref. 4 - Izvestiya VUZov MVO SSSR, razdel Radiotekhnika, no. 3, 1959). For values of the retardation factor from 4 to 7, the difference between theoretical and experimental results does not exceed 10%. The group velocity was found from the dispersion curves. The curve of measured coupling impedance values is compared with a theoretical curve, calculated by a formula previously obtained by the authors (Ref. 4). In the region of small retardation values, the theoretical and experimental curves are very close to each other but differ considerably as the retardation γ increases. This difference is explained by the errors in the experiment due to inhomogeneity of the field along the length

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of the abosrbing element and by the assumptions of the theory. The coupling impedance falls from a high value to less than 10 ohms for $\gamma > 6$. A feature of the "spiral-channel" is the variation in the field distribution with increase of retardation and this makes the passage of the electron beam down the central channel inconvenient. The electron beam should be passed through special orifices in the walls of the channel located at anti-nodes of the electric field but as these anti-nodes will be displaced with change of frequency, the interaction between the beam and the field will be considerably reduced with change in frequency. The extent of this displacement was investigated and a curve showing the dependence of the anti-node position on frequency was plotted. The curves show that above a particular frequency very little further displacement occurs. Therefore, providing the positions of the orifices are correctly selected, effective interaction between the beam and the field can be ensured. There are 6 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The two English-language references mentioned are: Ref. 1 - Lester M. Field - Some

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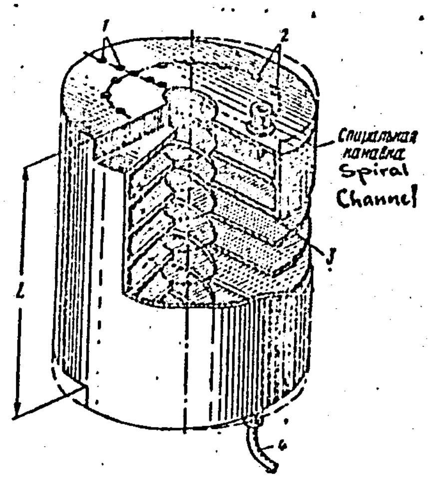
Investigation of ....

30745
S/535/60/000/125/007/008
E033/E362

Slow-wave Structures for Travelling-wave Tubes. PIRE, January, 1949, pp. 34-40; Ref. 3 - Joseph E. Rowe - A Wideband Structure for High-power Travelling-wave Tubes. Trans. IRE (Professional Group on Electron Devices), December, 1953, pp. 55 - 56.

Fig. 2: - Resonance model.

1, 2 - apertures for investigating the field-distribution;
3 - Slow-wave system;
4 - cable to indicator.



4

Card 4/4

30742

S/535/60/000/125/003/008
E133/E162

9,1300

AUTHORS: Voskresenskiy, D.I., and Granovskaya, R.A.

TITLE: Investigation of a rectangular comb in a rectangular waveguide

SOURCE: Moscow. Aviatsionnyy institut. Trudy. no. 125, 1960. Elektromagnitnyye zamedlyayushchiye sistemy; metodika izmereniya elektricheskikh kharakteristik. 35-42

TEXT: In this article the dispersion properties and coupling impedance of a uniform rectangular "comb" placed in a rectangular waveguide are investigated by using a resonant model. The block diagram is shown in Fig.1 and the details of the model are shown in Fig.2. The comb consists of metal fins 0.0066 a thick, separated by a period T = 0.05 a, where a is the width of the waveguide. The length of the model can be varied by changing the number of fins and moving the short-circuiting piston. To investigate the dispersion properties, the resonant frequency of the model is determined for each position of the piston. Those frequencies at which one semi-wave of the slow-wave ($\lambda_z/2$) occurs (corresponding to the distribution of the electric field components E_x, E_y as

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E133/E162

shown in Fig.2a) are noted. The model is excited by a standard signal generator and the meter 28ИМ (28IM) is used as an indicator. The field distribution in the model is determined by a capacitive probe. The value of the retardation is determined by:

$$\gamma = \frac{c}{\lambda_z f_p}$$

where $c = 3 \times 10^8$ m/sec. The measured values of the retardation are plotted against the electrical width, $\theta^o = 360^o$ $a/\lambda = 360^o f \times a/c$. For comparison, the theoretical curve is also plotted. This is obtained from the formula for a uniform comb of infinite length along the y axis :

$$\sqrt{\gamma^2 - 1}\ \mathrm{th}\ \frac{2\pi}{\lambda} g \sqrt{\gamma^2 - 1} = \mathrm{tg}\ \frac{2\pi}{\lambda} h \qquad (1)$$

where: h is the depth of the channel; g is the width of the upper gap; λ is the working wavelength. The difference between the theoretical and experimental curves (about 10%) is due to the effect of the side walls and the side channels. Thus, this

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formula is applicable, providing the side channels are not too small. The higher mode shown in Fig.2б was also investigated and its dispersion curve is plotted, together with the dispersion curve of the fundamental mode for comparison. The coupling impedance was investigated by the absorption method on the same resonant model. The values of the coupling impedance were determined in the longitudinal plane of symmetry of the system at the surface of the comb, where it has its maximum value. The value at any point in the gap is then determinable from:

$$R = \cos^2 \pi \quad \frac{r}{a} \quad \frac{\mathrm{sh}\, r \frac{x}{g}}{\mathrm{sh}^2\, r} \; R_{max} \qquad (2)$$

where R_{max} is the coupling impedance as measured, and

$$r = g \sqrt{\left(\frac{2\pi}{\lambda_z}\right)^2 - \left(\frac{2\pi}{\lambda}\right)^2} = \frac{2\pi}{\lambda} g \sqrt{\gamma^2 - 1}$$

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The absorbing element was a plate of phenopolystyrol covered by aduadag. Two elements were used (Fig.6) and the reason for their shapes and dimensions are discussed. The Q-factor of the model was about 1000 and the accuracy of the measured value of the coupling impedance about 15%. The results are presented graphically together with the curve $R = f(\gamma)$. For comparison, the curve of theoretical values of R_{max}, calculated from the approximate formula:

$$R_{max} = \frac{1510}{kb} \sqrt{\left(1 - \frac{1}{\gamma^2}\right)^3} \frac{sh^2 r}{2r + sh\, 2r} \frac{b}{a} \qquad (3)$$

where $k = 2\pi/\lambda$ is the wave number and b is the waveguide height, is also given. The difference between the theoretical and experimental values does not exceed 20%, and thus formula (3) may be used provided the gaps between the comb and the side walls are not too small.

There are 9 figures and 4 references: 2 Soviet-bloc and 2 Russian translations from non-Soviet publications.

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VOSKRESENSKIY, D. I.

М. А. Миллер

Ускорение заряженных сгустков высокочастотными электромагнитными полями

10 июня

(с 18 до 22 часов)

Д. И. Воскресенский,
Р. А. Грановская

Замедляющая система в виде спиральной канавки для ЛБВ.

С. Г. Константинов

Отклоняющие системы с бегущей волной

И. М. Блейвас,
И. И. Голицын,
Н. М. Кашлева,
В. Я. Мастеренко

Исследование электронных потоков в пространстве взаимодействия приборов СВЧ с помощью автомата для построения траекторий заряженных частиц

Г. А. Мачулка,
Е. Д. Наумова

Замедляющая цепь типа фильтра для мощных ламп с бегущей волной дециметрового диапазона

34

11 июня

(с 10 до 16 часов)

Совместное заседание с секцией ферритовых устройств СВЧ

В. Н. Зубков, М. С. Нейман

Некоторые вопросы теории параметрических усилителей

В. Н. Тучинский

К теории ферритового усилителя

В. Н. Тучинский,
Ю. Т. Дереш,
Э. В. Корнилов

Экспериментальное исследование ферритового усилителя

А. Я. Монсевич,
Н. З. Шварц

Некоторые результаты исследования ферритовых усилителей

А. С. Тагер

К теории параметрического усиления в замедляющих системах

35

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

VOSKRESENSKIY, D.I.

VOSKRESENSKIY, D. I.

"Uniformly Curved Waveguide With Rectangular Transverse Cross Section," pp 5-44, ill, 12 ref -1957

Abst: The author examines the problems of the theory of regular, uniformly curved waveguides with rectangular transverse cross section with bends of arbitrary radius and gives the results of an experimental check of the basic aspects of the theory of regular uniformly curved waveguides.

SOURCE: Trudy MAI im. S. Ordzhonikidze MVO SSSR (Works of the Moscow Aviation Institute imeni S. Ordzhonikidze of the Ministry of Higher Education USSR), No 73, Problems of Radio Engineering of Superhigh Frequencies, Moscow, Oborongiz, 1957

Sum 1854

VOSKRESENSKIY, D. I.

"Coupling of a straight and a Uniformly Curved Waveguide With Rectangular Transverse Cross Section," pp 45-84, ill, 8 ref

Abst: A theory for coupling bent and straight waveguides is developed. Parameters for the equivalent coupling circuits are developed on the basis of the application of the concepts of the theory of lines, generalized to the waveguide systems by M. S. Neyman. A detailed examination is made of the cases of coupling straight waveguides with uniformly curved waveguides in E and H planes when the waveguide system transmits only one mode of oscillation.

SOURCE: Trudy MAI im. S. Ordzhonikidze MVO SSSR (Works of the Moscow Aviation Institute imeni S. Ordzhonikidze of the Ministry of Higher Education USSR), No. 73, problems of Radio Engineering of Superhigh Frequencies, Moscow, Oborongiz, 1957

Sum 1854

VOSKRESENSKIY, D.I., kand. tekhn. nauk.

Using the resonance method for measuring wave guide irregularities causing minor reflections. Trudy MAI no.98:64-82 '58. (MIRA 11:5)
(Wave guides)

L 27839-66 EWT(1)/T/FCS(k) WR

ACC NR: AP6000522 SOURCE CODE: UR/0142/65/008/005/0574/0580

AUTHOR: Voskresenskiy, D. I.; Gudzenko, A. I.

ORG: none

TITLE: Directional patterns of arc-shaped antenna arrays

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 5, 1965, 574-580

TOPIC TAGS: antenna array, antenna directivity

ABSTRACT: Spatial directional patterns of a pencil-beam-type arc-shaped array are considered, when the arc radius is large and the spacing between adjacent radiators is small as compared to the wavelength; the effects of the amplitude distribution of feed currents and of the directivity of individual radiators are explored. Formulas are developed for the approximate calculation of directional patterns by means of equivalent linear antennas. The directional pattern of an arc-shaped array is determined by Bessel functions whose coefficients are obtained from Fourier expansions for each type of amplitude distribution over the arc and for the directivity of each radiator. The arc-shaped array is directional in two planes.

Card 1/2 UDC: 621.396.67

L 27839-66

ACC NR: AP6000522

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Hence, its directive gain is higher than that of a linear cophasal antenna whose length is equal to the projection of the arc on the normal to the major-lobe direction. Orig. art. has: 4 figures and 22 formulas.

SUB CODE: 09 / SUBM DATE: 18Jul63 / ORIG REF: 005 / OTH REF: 001

Card 2/2 TS

VOSKRESENSKIY, G., kand.tekhn.nauk

Selecting an efficient layout for automatic control of marine water-tube boilers. Mor. flot 18 no.5:10-11 My '58. (MIRA 11:6)

1. Vsesoyuznyy tsentral'nyy nauchno-issledovatel'skiy institut im. akademika A.N. Krylova.
(Boilers, Marine) (Automatic control)

CMSIL No. 45

Voskresenski, E.P. and Sobolev, V.I., One class of non-linear integral equations, 717-8

Akademiya Nauk S.S.S.R., Doklady Vol. 77 No. 5

VOSKRESENSKIY, F.F.

Hydropneumatic percussion device without springs. Osn., fund. i mekh. grun. 4 no.3:27-28 '62. (MIRA 15:7)
(Boring machinery)

VOSKRESENSKIY, F.F., inzh.

Turbine vibrator and vibration hammer. Transp. stroi. 11 no.7:28-30 Jl '61. (MIRA 14:7)
(Turbomachines) (Vibrators)

VOSKRESENSKIY, F.F.

Device for rock boring in mines. Gor. zhur. no.8:49 Ag '58.
(Boring machinery--Patents) (MIRA 11:9)

Voskresenskiy, F.F.

BARKAN, D.D.; VOSKRESENSKIY, F.F.; VYSKREBTSOV, G.D.; SLAVSKIY, V.M.; TAGIYEV, E.I.

Effect of vibrations on footage drilled by a single bit.
Neft. khoz. 35 no.10:17-20 O '57. (MIRA 11:1)
(Boring machinery--Vibration)

VOSKRESENSKIY, F.F.

670* Effect of Vibrations on Rate of Hard-Rock Penetration by a Three-Cutter Rotary Drilling Bit. Vliianie vibratsii na skorost' vrashchatel'nogo bureniia tverdykh porod trekh-sharoshechnym dolotom. (Russian.) F. I. Tagiev, D. D. Barkan, V. M. Slavskii, F. F. Voskresenskii, and G. D. Voskreb- [illegible] ... no. 9, Sept. 1957, p. 20-26. [illegible]

VOSKRESENSKIY, F.F.

AID P - 3275

Subject : USSR/Mining

Card 1/1 Pub. 78 - 5/24

Authors : Tagiyev, E. I., D. D. Barkan, V. M. Slavskiy, F. F. Voskresenskiy, G. D. Vyskrebtsov

Title : Influence of vibrations on the speed of rotary drilling of hard formations by a three-cutter bit

Periodical : Neft. khoz., v. 33, #9, 20-28, S 1955

Abstract : At the All-Union Scientific Research Institute of Oil Drilling (VNIIburneft'), tests have been made to deterime the influence of forced vertical vibrations on the drilling speed of bits. An empiric formula has been devised in which the increase in speed of rotary drilling of hard formations by three-cutter bits due to forced vertical vibrations is calculated as a function of the parameters of the vibrator, the kind of drilling operations, the diameter of the bit, and specific properties of the drilled formations. Diagram, charts.

Institution : None

Submitted : No date

VOSKRESENSKIY, Fedor Fedorovich; KICHIGIN, Anatoliy Valentinovich; SLAVSKIY, Vasiliy Mikhaylovich; SLAVSKIY, Yuriy Nikolayevich; TAGIYEV, Eyyub Izmailovich; DUBROVINA, N.D., vedushchiy red.; FEDOTOVA, I.G., tekhn. red.

[Vibration and combination drilling] Vibratsionnoe i udarno-vrashchatel'noe burenie. By F.F.Voskresenskii i dr. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 243 p. (MIRA 14:9)

(Boring)

VOSKRESENSKIY, G.

Thoughtful, vigilant, strict. Mast.ugl. 9 no.2:8-8a F '60. (MIRA 13:7)

(Industrial safety)

VOSKRESENSKIY, G., kandidat tekhnicheskikh nauk.

Technical means of increasing the economy and ease of control of automatized marine steam boilers. Mor. flot 17 no.4:10-13 Ap '57. (MLRA 10:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut imeni akademika Krylova.

(Boilers, Marine) (Automatic control)

VOSKRESENSKIY, G.

Wrote about bad conditions at Kosaya Gora Metallurgical Plant, Tul'skaya O., RSFSR

Soviet Source: N: Trud (Labor), #122, 26 Jan 1950, Moskva

Abstracted in USAF, "Treasure Island", on file in Library of Congress, Air Information Division, Report No. T.I. 98501

VOSKRESENSKIY, G.G., kand.tekhn.nauk

Imperfect teaching aid ("Automatic control of boiler units" by S.G. Gerasimov, E.G. Dudinkov, S.F. Chistiakov. Sudostroenie 24 no.3:81-82 Mr '58. (MIRA 11:4)

(Boilers, Marine) (Automatic control)

VOSKRESENSKIY, G.G., kandidat tekhnicheskikh nauk.

Automatic device for reducing the oxygen content in the feed water of main boilers. Sudostroenie 22 no.8:11-12 Ag '56. (MLRA 9:10)

(Boilers, Marine) (Feed-water purification)
(Automatic control)

Voskresenskiy, G. N.

YAKUSHEV, Yakov Afanas'yevich; YAKUSHEVA, Yekaterina Yakovlevna; DUL'NEV, G.M., otvetstvennyy red.; VOSKRESENSKIY, G.N., red.; TARASOVA, V.V., tekhn.red.; LAUT, V.G., tekhn.red.

[The organization of agricultural teaching in auxiliary schools; based on practical experience] Organizatsiia obucheniia sel'skokhoziaistvennomu trudu vo vspomogatel'noi shkole; iz opyta raboty. Otv. red. G.M.Dul'nev. Moskva, Izd-vo Akad.pedagog.nauk RSFSR, 1957. 86 p. (MIRA 11:2)
(Agriculture--Study and teaching)

BABENKO, K.I. (Moskva); VOSKRESENSKIY, G.P. (Moskva)

Numerical method for the spatial calculation of a hypersonic gas-flow around bodies. Zhur. vych. mat. i mat. fiz. 1 no.6:1051-1060 N-D '61. (MIRA 16:7)

BABENKO, Konstantin Ivanovich; VOSKRESENSKIY, Georgiy Pavlovich;
LYUBIMOV, Aleksandr Nikolayevich; RUSANOV, Viktor
Vladimirovich

[Three-dimensional flow of an ideal gas past smooth bodies]
Prostranstvennoe obtekanie gladkikh tel ideal'nym gazom.
Moskva, Nauka, 1964. 505 p. (MIRA 17:8)

31109
S/208/61/001/006/006/013
B112/B138

10.1200 1327 1502 1103

AUTHORS: Babenko, K. I., Voskresenskiy, G. P. (Moscow)

TITLE: A numerical method of calculating a spatial supersonic flow around bodies

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 1, no. 6, 1961, 1051-1060

TEXT: The system $\partial\vec{X}/\partial t + A\partial\vec{X}/\partial\xi + B\partial\vec{X}/\partial\vartheta + \vec{Y}$, which corresponds to the flow around a conic body, is reduced to a system of difference equations

$$X_{m+1,l}^{n+1} + X_{m,l}^{n+1} + 2\varkappa_1\alpha A_{m+1/2,l}^{n+1/2}(X_{m+1,l} - X_{m,l})^{n+1} + \frac{\varkappa_2}{2}\gamma B_{m+1/2,l}^{n+1/2}(X_{m+1,l+1} - X_{m+1,l-1} + X_{m,l+1} - X_{m,l-1})^{n+1} = -2\tau Y_{m+1/2,l}^{n+1/2} + X_{m+1,l}^{n} + X_{m,l}^{n} - 2\varkappa_1\beta A_{m+1/2,l}^{n+1/2}(X_{m+1,l} - X_{m,l})^{n} - \frac{\varkappa_2}{2}\delta B_{m+1/2,l}^{n+1/2}(X_{m+1,l+1} - X_{m+1,l-1} + X_{m,l+1} - X_{m,l-1})^{n}, \quad (6)$$

α, β, γ, δ are positive numbers which satisfy the relations $\alpha + \beta = 1$,

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$\gamma + \delta = 1$. The system (6) is solved by iteration according to the following scheme:

$$\begin{aligned} & X_{m+1,l}^{n+j/k} + X_{m,l}^{n+j/k} + 2\varkappa_1 \alpha A_{m+1/2,l}^{n+j/2k} (X_{m+1,l} - X_{m,l})^{n+j/k} + \\ & + \frac{\varkappa_2}{2} \gamma B_{m+1/2,l}^{n+j/2k} (X_{m+1,l+1} - X_{m+1,l-1} + X_{m,l+1} - X_{m,l-1})^{n+(j-1)/k} = \\ & = -2\tau Y_{m+1/2,l}^{n+j/2k} + X_{m+1,l}^{n} + X_{m,l}^{n} - 2\varkappa_1 \beta A_{m+1/2,l}^{n+j/2k} (X_{m+1,l} - X_{m,l})^{n} - \\ & - \frac{\varkappa_2}{2} \delta B_{m+1/2,l}^{n+j/2k} (X_{m+1,l+1} - X_{m+1,l-1} + X_{m,l+1} - X_{m,l-1})^{n}, \end{aligned} \tag{7}$$

Numerical computations are carried out for the cases $M_\infty = 3.5$, $\alpha_o = 5^\circ$, 10°, 15°, 19°, and $M_\infty = 3.53$, $\alpha_o = 5^\circ$ (M_∞ = Mach number, α_o = angle of attack of the body). Z. Ye. Svishchev and E. I. Nazhestkin are thanked for assistance. There are 15 figures, 1 table, and 1 Soviet reference.

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44749
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AUTHORS: Burshteyn, E. L., and Voskresenskiy, G. V.

TITLE: The radiation of a single charge in a semi-infinite wave guide filled with a dielectric

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 1, 1963, 34 - 42

TEXT: A study is made of the Cherenkov radiation in a wave guide filled completely with a dielectric and having one end wall at z = 0. A charged particle is assumed to appear at the center of the end wall at t = 0 and to move uniformly with a velocity v along the axis of the wave guide. The current density produced by this moving point charge induces a system of waves with the longitudinal component

$$E_z(\omega) = E_z^0(\omega) + E_z^1(\omega) = -\sum_{s=1}^{\infty} \frac{4q\omega(\epsilon\beta^2 - 1) J_0(\varkappa_s r)}{v^2 a^2 \epsilon J_1^2(\mu_s)} \frac{1}{2\pi i} \frac{e^{i\frac{\omega}{v}z}}{\frac{\omega^2}{v^2} - h_s^2} + \sum_{s=1}^{\infty} \frac{4q\varkappa_s^2 J_0(\varkappa_s r)}{v a^2 \epsilon J_1^2(\mu_s)} \frac{1}{2\pi i} \frac{1}{\frac{\omega^2}{v^2} - h_s^2} \frac{e^{ih_s z}}{h_s}. \quad (5)$$

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of the electric field. Through a Fourier transformation followed by integration in the complex plane this gives $E_z(r, z, t) = E_z^0(r, z, t) + E_z^1(r, z, t)$. E^0 is the same as the field induced by a moving charge in an infinite structure (B. M. Bolotovskiy, UFN, LXII, no. 3, 201, 1957). The second term

$$I_s(t) = \frac{1}{2\pi i} \int_{-\infty}^{\infty} \frac{e^{-t\left[i\omega \mp iV\sqrt{\omega^2-\omega_{0s}^2}\right]}}{(\omega^2-\omega_{0s}^2)\sqrt{\omega^2-\omega_{0s}^2}}\, d\omega \qquad (8) \text{ with}$$

$$\left.\begin{aligned} &\omega_{cs} = \frac{x_s c}{\sqrt{\varepsilon}}, \quad \omega_{0s} = \frac{x_s v}{\Gamma}, \quad V = \frac{z\sqrt{\varepsilon}}{ct}, \quad \Gamma^2 = \varepsilon\beta^2 - 1 > 0, \\ &A_s = \frac{4q x_s^2 J_0(x_s r)\, vc}{a^2 \varepsilon^{3/2} J_1^2(\mu_s)\Gamma^2}. \end{aligned}\right| \qquad (7)$$

depends on the end wall of the wave guide. As it is difficult to evaluate the integral $I_s(t)$ exactly for large values of t, an approximation based on a modified saddle point method can be used instead. The integral $I_1(t)$ re-

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duces to the sum of a residue and an integral over the two sides of a section. The propagation velocity of a signal forerunner is equal to the phase velocity of a wave in an infinite dielectric. The field E_z^1 exists only at the points reached by the forerunner. The field in the region between the cross section $z_1 = vt$ moving with the charge and the cross section $z_1 = wt$ moving with the group velocity w is the same as the field E^o of the Cherenkov radiation of a particle in an infinite tube. The following "pole wave" has the group velocity $w = c^2/\varepsilon v$ in the wave guide and extinguishes the field E^o behind the group front $z = wt$. No field exists behind this pole wave. Superposed on the above is also the field corresponding to the integrals on the section which for large t can be expressed by a Fresnel integral. The first term in the expression

$$z_{\text{гран.}} = wt \pm \sqrt{\pi}\frac{c^2}{\sqrt{\varepsilon}} \cdot \frac{\Gamma^{\frac{3}{2}}}{a^{\frac{3}{2}}\varkappa^{\frac{1}{2}}} t^{\frac{1}{2}}, \qquad z_{\text{гран}} = z_{\text{bound}} \qquad (27)$$

for the boundaries of the transition region characterizes the comovement of the boundary point z_{bound} with the group front and the second term characterizes the dissolution of the transition region with time. The long general expression for $E_z^1(r, z, t)$ is simplified in the case of small x (i.e. in the vicinity of $v_{crit} = c/v\sqrt{E}$) to $E_z^1(r, z, t) = -E_z^0(r, z, t)/2 + O(t^{-1/2})$. Its second term describes the gradual transition through the region of the group front. For large x one has

$$E_z^1(r, z, t) = -\epsilon_1 E_z^0(r, z, t) - \sum_s \frac{4q J_0(x_s r)}{a^2 J_1^2(\mu_s)\, \epsilon x_s v} \frac{(1-V^2)^{\frac{3}{4}}}{V^2 - V_{\text{кр.}}^2} \times \times \sqrt{\frac{2}{\pi t}} \sin\left(\frac{\pi}{4} + \omega_{cs} t \sqrt{1-V^2}\right). \quad (30).$$

There are 3 figures.

SUBMITTED: January 25, 1962

VOSKRESENSKIY, G.V.; BOLOTOVSKIY, B.M.

Radiation from a charged point particle flying along the axis of a semi-infinite circular wave guide. Dokl. AN SSSR 156 no.5: 1072-1074 Je '64. (MIRA 17:6)

1. Predstavleno akademikom M.A.Leontovichem.

VOSKRESENSKIY, G.V.; BOLOTOVSKIY, B.M.

Field of a charge carrying thread uniformly moving near a system of ideally conducting half-planes. Dokl. AN SSSR 156 no. 4: 770-773 Je '64. (MIRA 17:6)

1. Predstavleno akademikom M.A.Leontovichem.

BOLOTOVSKIY, B.M.; VOSKRESENSKIY, G.V.

Radiation from a filament carrying current and a charged filament both flying past the open end of a plane wave guide. Zhur.tekh. fiz. 34 no.4:704-710 Ap '64.

Radiation from a point charged particle flying along the axis of a semi-infinite circular wave guide. Ibid.:711-717 (MIRA 17:4)

1. Fizicheskiy institut imeni P.N.Lebedeva, Moskva.

BOLOTOVSKIY, B.M.; VOSKRESENSKIY, G.V.

Field of a charged filament flying past a conducting half-plane at uniform speed. Zhur. tekh. fiz. 39 no.1:11-15 Ja '64. (MIRA 17:1)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

ACCESSION NR: AP4009915 S/0057/64/034/001/0011/0015

AUTHOR: Bolotovskiy, B.M.; Voskresenskiy, G.V.

TITLE: Field of a line charge moving past a conductive half-plane with uniform velocity

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.1, 1964, 11-15

TOPIC TAGS: line charge, moving line charge, line current, moving line current, radiation, uniform velocity radiation, diffraction

ABSTRACT: The two dimensional problem of the radiation from an infinite line charge moving past a conducting half-plane with uniform velocity in an arbitrary direction is solved. The calculation was undertaken because of the technical importance of the corresponding three dimensional problem. The exact solution of the two dimensional problem may give some insight into the validity of the approximations currently employed in the solution of the three dimensional one. The Hertz vector describing the field is expressed as the sum of that for the field in the absence of the plane and a correction term taking account of the diffraction. An integral equation is derived from the boundary conditions for an integral transform of the correction term.

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This was solved by a variant of the Wiener-Hopf method, and the result is given. Expressions are obtained for the energy radiated as a function of direction and frequency. There is an infrared catastrophe which, however, is relieved by taking account of the finite thickness and conductivity of the plane. The present results are valid only for such frequencies that the penetration depth (skin effect) is less than the thickness of the plane. The radiation from a line current moving similarly can be calculated is a similar way. The result is given. The energy radiated depends much more strongly on the velocity than in the case of a line charge. Orig.art.has: 21 formulas and 1 figure.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva AN SSSR (Physical Institute, AN SSSR)

SUBMITTED: 14Dec62 DATE ACQ: 10Feb64 ENCL: 00

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BURSHTEYN, E.L.; VOSKRESENSKIY, G.V.

Calculation of the energy of a radiation field of uniformly moving charged particles in delay systems. Radiotekh. i elektron. 7 no.12:2033-2036 D '62. (MIRA 15:11)
(Electromagnetic waves)
(Delay lines)

42551

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S/089/62/013/005/003/012
B102/B104

AUTHORS: Burshteyn, E. L., Voskresenskiy, G. V.

TITLE: The effect of beam load on the characteristics of a linear electron accelerator

PERIODICAL: Atomnaya energiya, v. 13, no. 5, 1962, 446-453

TEXT: The effect which the field produced by the particle beam exerts on the field configuration and on the nonsteady operation of the accelerator is calculated in continuation of earlier investigations (Nauchnyye trudy RAIANa SSSR III, no. 3, 1961). The calculations were made for one sector on the assumption that at relativistic velocities all sectors can be considered equivalent. In the theoretical investigations of linear electron accelerators hitherto made only the effect of the accelerating and focusing fields on the beam was considered, and not the effect of its own field. The total longitudinal field acting on the particles is made up of three components: the accelerating (external) field, the decelerating field of Cherenkov radiation (traveling waves), and the Coulomb field of the repelling particles. The latter decreases exponentially with the distance

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and, in this case, is neglected because it is much weaker than the Cherenkov field. The accelerating field at the time t in the point z is:

$$\mathcal{E}_a(t,z) = \begin{cases} 0 \text{ for } t-t_g < 0 \\ e^{-\alpha z} \text{ for } z/v_g < t-t_a,\ 0 < t-t_a < t_g \\ 0 \quad \text{for } z/v_g > t-t_a,\ 0 < t-t_a < t_g \\ e^{-\alpha z} \text{ for } t-t_a > t_g\ (t_g = 1/v_g);\ \text{steady operation.} \end{cases}$$

$\mathcal{E}_a(t,z) = E_a(t,z)/E_m$, E_a is the amplitude of the accelerating field, E_m is the maximum amplitude of the decelerating field configuration, t_a is the instant at which the generator is switched on, v_g is the group velocity of the field propagating in the sector (length l), α is the attenuation factor.

The Cherenkov field, in dimensionless quantities $\mathcal{E}_q = E_q/E_{\omega}$ is

$$\mathcal{E}_q'(t,z) = \begin{cases} 0 \text{ for } t < t_1 \\ \chi\left(1-e^{-\alpha v_g(t-t_1)}\right) \text{ for } t > t_1,\ v_g(t-t_1) < z \\ \chi(1-e^{-\alpha z}) \text{ for } t > t_1,\ v_g(t-t_1) > z \end{cases}$$

χ is the current load coefficient, $\chi = E/E_m$, E_ω is the steady-state value of the Cherenkov field in an infinite waveguide, t_1 is the instant at which the current is switched off, $t = 0$ is the instant at which the electron injection begins. If the injection is made continuously then

$$\mathcal{E}_q(t,z) = \begin{cases} -\chi(1-e^{-\alpha z_g}) \text{ for } 1 > z > v_g t \\ -\chi(1-e^{-\alpha z}) \text{ for } z < v_g t. \end{cases} \quad z_g = zv/v_g.$$